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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,044	01/25/2007	Bill Cope	0090227	4339

9355 7590 10/28/2009

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EXAMINER	
TRAN, QUOC A	

ART UNIT	PAPER NUMBER
2176	

MAIL DATE	DELIVERY MODE
10/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,044	COPE, BILL	
	Examiner	Art Unit	
	Quoc A. Tran	2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/23/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 10/562,044.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/22/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is a Non Final Office Action in responses to patent application filed 12/23/2005. The current patent application claims foreign priority to 2003903306 filed ***06/27/2003.***

- Claims 1-30 are pending.
- Claims 1, 12, 17, 23 and 28 are independent claims.

Information Disclosure Statement

A signed and dated copy of applicant's IDS, which was filed on 09/22/2006 and, is attached to this Office Action.

It is noted, a portion of the references cited in the Information Disclosure Statement filed 09/22/2006 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because one the references does not list the RELEVANT PAGES [RULE 1.98 (B) (5)] of the publication as required. The examiner has not considered has lined through, that portion of the Information Disclosure Statement as to the merits (see the attachments strike-out line items for details).

Applicant is advised that the date, title and author of any re-submission of any item of information contained in these Information Disclosure Statements or the submission of any missing elements will be the date, title and author of submission for purposes of determining compliance with the requirements based on the time of filing

the statement, and title and author including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Objections

Claim 1-2, 4-5, 7-12, 14-15, 17, 19, 20-21, and 23-30 are objected to because of the following informalities:

The claims should be by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

In addition, Claim 29, all paragraphs in the claim, which is ended with more than one "periods" ["Each claim begins with a capital letter and ends with **A PERIOD**. Periods may not be used elsewhere in the claims except for abbreviations".] See MPEP 608.01(m) [R-7]

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11, 15, and 17-27, are rejected under 35 U.S.C. 112, rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. For example claims 1, 4, 17 and 23 contain the following text:

'interlanguage' document type definition (interlanguage DTD)

('includes in its class ...'), hyperonymy ('is a class of ...'), and ....

First, the apostrophe surrounding the word interlanguage is not consistent with current practices. Normally apostrophes are used in the English language to denote either possession or used in literary writing to emphasize a phrase that is an expression. The claim language cannot be expressive and must recite definite subject matter. Therefore apostrophes should only be used to recite possession.

Second, the parentheses are acceptable in the claims if defining an acronym however they should only include the acronym not additional words. In claim 1 the word interlanguage should be removed from the parenthesis. The parenthesis use in claims 4 and 5 makes these claims indefinite, because no acronym is being defined and the language appeared to be expressive.

Third, the use of the expression "..." should not be in the claim language because it is indefinite.

In addition, claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 25 U.S.C. 112, second paragraph. See, Ex Parte Lyell, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990). See also, MPEP 2173.05(p). (See claim 12 page 40)

Also, Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, because claim 29 recites the limitation *"a higher... and lower"* @ Page 45 (i) and (ii) and the instance specification @ Page 12 Lines 20-21, rendering the claims indefinite; since one of ordinary skill in the art would not be reasonably appraised the metes and bounds of the claims. (See claim 29 pages 44-45)

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim(s) 17-22:

In summary, Claim 17 recites a "***system***" for translating first schema into a second schema includes "***ontology deconstruction and reconstructing transfer mechanism"*** to automatically create an interlanguage DTD. The recited "*ontology*

deconstruction and reconstructing transfer mechanism " are illustrated in Figure 4, and the Specification expressly states, " deconstruction and reconstruction transfer mechanism can include providing an apparatus able to: machine-read tags automatically; interpret the data format which has been marked up by the tags and detect its inherent structures or semantics; and transfer this data into the second schema via automatic interlanguage DTD definition of the first schema into the second schema.... [@ Page 8 Lines 10-20]. As recognized by the Examiner, in this case the ontology deconstruction and reconstructing transfer mechanism, which can be implemented in **software OR hardware**. Thus, the "*ontology deconstruction and reconstructing transfer mechanism* ", are computer software *per se*.

Computer software is not a process, a machine, a manufacture or a composition of matter, as set forth in 35 U.S.C. 101. Accordingly, Claim 1 does not recited statutory subject matter.

Claims 18-22 merely recite additional computer software components and/or functionality of the *ontology deconstruction and reconstructing transfer mechanism*." Thus, none of Claims 17-22 recite statutory subject matter.

Claim(s) 23-27:

Claim 27 recites a "***computer readable medium***" having a program encoded thereon for translating first schema into a second schema...be the transfer mechanism.

The Examiner notes the disclosure of the present invention expressly states," A computer readable media having a program ... to allow an automatic interlanguage definition of the first schema and translation into the second schema by ***the transfer mechanism***....." see. As such, Claim 23 is drawn to a form of energy. Energy is not one of the four categories of invention and therefore this claim(s) is/are not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefor not a composition of matter. Accordingly, Claim 23 fails to recite statutory subject matter, as defined in 35 U.S.C. 101.

Claims 23-27 merely recite additional "*computer readable medium*" having a program encoded thereon for translating first schema into a second schema...be the transfer mechanism. Thus, none of Claims 23-27 recite statutory subject matter

In the interest of compact prosecution, the application is further examined against the prior art, as stated below, upon the assumption that the applicants may overcome the above stated rejections under 35 U.S.C. 101.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> ***(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject***

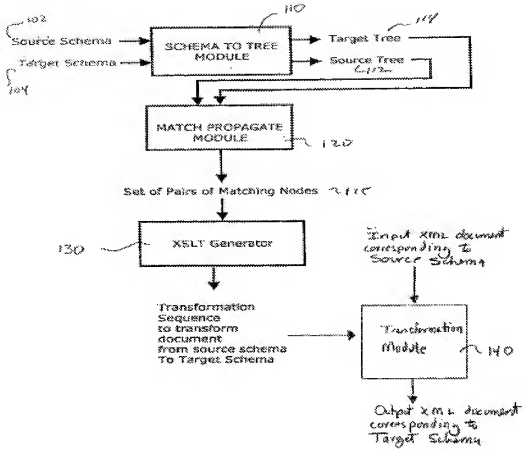
matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Su** et al., (US 20030167445A1- Filed 03/04/2002) [hereinafter "Su"], in view of **Skeen** (et at., (US20030088543, filed 10/07/2002) [hereinafter "Skeen"].

Regarding **independent claim 1**, Su teaches:

> **A method of translating a first schema of data having one structure OR semantics into a second schema of data having a second structure OR semantics by using an ontology reconstruction transfer mechanism which creates an 'interlanguage' document type definition (interlanguage DTD) in which the interlanguage DTD manages the structure and semantics of the structure and semantics of data to allow an interlanguage definition of the first schema and translation into the second schema by the transfer mechanism.**

(See Figure 1 and @ para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically **transforming** one XML schema to another XML schema through a sequence of transformation operations, is thus described. Also the automatically transforming incorporates domain-specific characteristics of the XML documents, such as, domain **ontology,** common transformation types, and specific **DTD** modeling **constructs** (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations.]



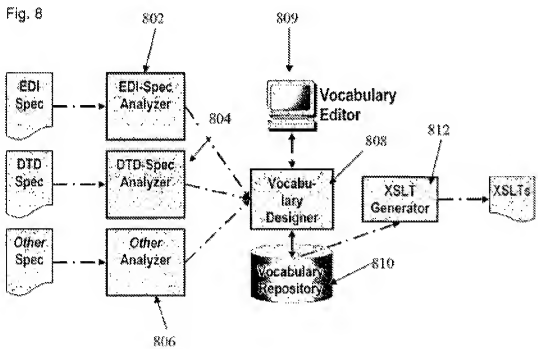
In addition, Su does not expressly teach, but Skeen teaches:

A method of translating a first schema of data having one structure OR semantics into a second schema of data having a second structure OR semantics by using an ontology deconstruction and reconstruction,

(See figure(s) 6 and 8 and @ Para [120 and 128] →Skeen discloses for creating vocabulary dictionaries and on ontology dictionaries. Architecture 800 analyzes the document specifications for the vocabularies of interest, builds the corresponding vocabulary and ontology dictionaries, and stores and manages the dictionaries in repository 804. This architecture makes use of Specification Analyzer 802 (spec

analyzer (e.g., ontology deconstruction) performs the functions of reading and parsing the specification for a vocabulary and generating the initial vocabulary and ontology dictionaries, as described in Steps 602 and 604 of FIG. 6 ([@ Para [120]). Also Skeen further discloses 6he uses of Vocabulary transformer accesses the vocabulary dictionaries and the shared ontology dictionary for the source and target vocabularies utilized the spec analyzer (e.g., ontology deconstruction) and then passes the newly created target document to the appropriate formatter 912, 914, 916, for final conversion to the target format. For example, if the final format was XML based on an XML -DTD specification, then the vocabulary -transformer 910 would pass the target document to the XML -DTD formatter 914, [@ Para [128].)

Fig. 8



Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said translating a first schema of data having one structure OR semantics into a second schema of data having a second structure OR semantics by using an ontology deconstruction and reconstruction as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **independent claim 12**, Su teaches:

> **A method of providing an apparatus which interpellates source data into a interlanguage DTD format for use in transferring data marked up in a first schema of data having one structure OR semantics into a second schema of data having a second structure or semantics;**

(See Figure 1 and @ para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically **transforming** one XML schema to another XML

schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain **ontology,** common transformation types, and specific **DTD** modeling **constructs** (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations.]

providing a quantum of source data of said first schema to a processing and storing apparatus;

(See para [0113]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., transforming schema by generating the current quantifier node (quantum source). By default, the target XML data nodes instantiates by assigning the value from the first several source XML data nodes among all the available source XML data nodes.

automatically reading the structure and semantics ontology immanent in the source data by interpreting this both from the DTD and the way the DTD is realised in that particular instance;

(See para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. Also the automatically transforming incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling

constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations.]

In addition, Su does not expressly teach, but Skeen teaches:

applying one OR more of the four filters: a delicacy filter, a synonomy filter, a contiguity filter and a subset filter;

(See para [0120]→ Skeen disclosed this limitation, as clearly indicated in the cited text [e.g., Specification Analyzer 802 (spec analyzer (filtering) performs the functions of reading and parsing the specification for a vocabulary and generating the initial vocabulary and ontology dictionaries.]

the interlanguage DTD comprising of relationships of tags that are unambiguous based on the readable structure of the DTD and evidence drawn from its instantiation in the source data;

(See para [0003; 0100 and 0128]→ Skeen disclosed this limitation, as clearly indicated in the cited text [e.g., Data is placed between descriptive XML **tags** as metadata [0003] wherein a vocabulary is said be **"unambiguous"** if each term within its associated terminology will be resolved to at most one concept in its associated ontology over all valid source documents and valid contexts [0100]]. Also Skeen further discloses the uses of XML -DTD specification, and the vocabulary -transformer would pass the target document to the XML -DTD formatter, @ Para [128] of Su.])

machine-reading the said source data into a DTD according to a schematic structure of particular source ontology; and machine-reading determining from the DTD and its particular instantiation an inherent taxonomic OR schematic structure forming the interlanguage DTD;

(Also Skeen further discloses the machine readable specification for the vocabulary is parsed. In step 604, the specification is analyzed to derive an initial vocabulary dictionary and an initial ontology, @ Para [0108]. Also Skeen further discloses the uses of XML -DTD specification, and the vocabulary -transformer would pass the target document to the XML -DTD formatter, @ Para [128] of Su.])

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said applying one OR more of the four filters: a delicacy filter, a synonomy filter, a contiguity filter and a subset filter, ; wherein the interlanguage DTD comprising of relationships of tags that are unambiguous based on the readable structure of the DTD and evidence drawn from its instantiation in the source data; wherein machine-reading the said source data into an DTD according to a schematic structure of a particular source ontology; and machine-reading determining from the DTD and its particular instantiation an inherent taxonomic OR schematic structure forming the interlanguage DTD as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology

domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **independent claim 17**,

Claim 17 is directed toward a system to implement a method recited in Claim(s) 1 and 12. Thus, Su and Skeen disclose every limitation of Claim 17 and provide proper reasons to combine, as indicated in the above rejections for Claim(s) 1 and 12, and further comprising:

a tag reader for machine-reading tags automatically; an interpreter for interpreting of data format which has been marked up by the tags and detecting its inherent structures or semantics;

(Also Skeen further discloses the machine readable specification for the vocabulary is parsed. In step 604, the specification is analyzed to derive an initial vocabulary dictionary and an initial ontology, @ Para [0108]. Also Skeen further discloses the uses of XML -DTD specification, and the vocabulary -transformer would pass the target document to the XML -DTD formatter, @ Para [128] of Su.])

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said a tag reader for machine-reading tags automatically; an interpreter for interpreting of data format which has been marked up by the tags and detecting its inherent structures or semantics as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **independent claim 23**,

Claim 23 is directed toward a computer readable medium to implement a method recited in Claim 1**.** Thus, Su and Skeen disclose every limitation of Claim 23 and provide proper reasons to combine, as indicated in the above rejections for Claim 1,(see Su @ Para [27 and Page 10 claim 18, computer system, computer readable memory].)

Regarding **independent claim 28**,

the rejection of claim(s) 1 and 12 are fully incorporated. Thus, Su and Skeen disclose every limitation of Claim 28 and provide proper reasons to combine, as indicated in the above rejections for Claim(s) 1 and 12, and further comprising:

for creating interoperability between different mark-up schemas for the creation, location and formatting of digital content, the method including the organising digital mark-up or computer software tags of the first digital mark-up OR computer software ontology into an overarching interlanguage ontology capable of absorbing and incorporating at least one other digital mark-up or computer software ontology;

(See para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations (overarching interlanguage ontology capable).]

In addition, Skeen teaches:

method for extending the range of usability of ontology driven systems,

(See, Para [0096-123], Skeen discloses method for extending the range of usability of ontology driven systems (e.g., the vocabulary is parsed and analyzed to derive an initial vocabulary dictionary and an initial, wherein the vocabulary and ontology dictionaries could be made available in any number of formats and access methods and need not be stored in a vocabulary repository.)

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a method for extending the range of usability of ontology driven systems extending the range of usability of ontology driven systems as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 2**,

Su and Skeen teach the method of claim 1 and further comprise:

using the interlanguage DTD to transfer the data of the first schema into the second schema;

(See para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically transforming one XML schema to another XML schema. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations.]

In addition, Su does not expressly teach, but Skeen teaches:

the deconstruction and reconstruction transfer mechanism includes: machine-reading tags;

(See figure(s) 6 and 8 and @ Para [120 and 128] →Skeen discloses the Specification Analyzer (e.g., ontology deconstruction) performs the functions of reading and parsing the specification for a vocabulary and generating the initial vocabulary.)

interpreting the data format which has been marked up by these tags and detecting its inherent structures or semantics to be included in the interlanguage DTD;

(See para [0003; 0100 and 0128]→ Skeen disclosed this limitation, as clearly indicated in the cited text [e.g., the data is placed between descriptive XML tags as metadata [0003]; wherein a vocabulary is said be "unambiguous" if each term within its associated terminology will be resolved to at most one concept in its associated ontology over all valid source documents and valid contexts [0100]. Also Skeen further discloses the uses of XML -DTD specification and, and the vocabulary -transformer, @ Para [128] of Su.])

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said the deconstruction and reconstruction transfer mechanism includes: machine-reading tags; and interpreting the data format which has been marked up by these tags and detecting its inherent structures or semantics to be included in the interlanguage DTD as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 3**,

Su and Skeen teach the method of claim 2 and further comprise:

the transfer mechanism uses at least two overarching mechanisms;

(See para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically transforming one XML schema to another XML schema utilized, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations (e.g., two overarching).]

Regarding **claim 4**,

Su and Skeen teach the method of claim 3 and further comprise:

overarching mechanism includes a superordination mechanism and a composition mechanism in which the superordination mechanism constructs tag-to-tag 'is a ...' relationships and the composition mechanism constructs tag-to-tag 'has a ...' relationships;

(See para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically transforming one XML schema to another XML schema utilized, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations (e.g., two overarching).]

Regarding **claim 5**,

Su and Skeen teach the method of claim 4 and further comprise:

within the superordination mechanism, there are any one or more of the submechanisms of hyponymy ('includes in its class ...'), hyperonymy ('is a class of ...'), co-hyperonomy ('is the same as ...'), antonymy ('is the converse of ...') and series ('is related by gradable opposition to ...').;

(See para [84]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., the match discovery process between the DTD trees follows parameter settings are used, where the cost of each data capacity gap category ranks from lower to higher in the order of DC-Preserve (0.25), DC-Increase (0.5), DC-Ambiguous (0.75) and DC-Reduce (1.0) [e.g., superordination mechanism].)

Regarding **claim 6**,

Su and Skeen teach the method of claim 4 and further comprise:

within the composition mechanism, there are any one OR more of the submechanisms of meronymy ('is a part of .,.'), co-meronymy ('is integrally related to but exclusive of ...'), consistency ('is made of ...'), collectivity ('consists of ...').

(See the Abstract→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., modeling a target XML document corresponding to a target schema as a target tree having a plurality of target nodes. A sequence of transformation operations that

transforms the source tree to the target tree is then generated [e.g., composition mechanism].)

Regarding **claim 7**,

Su and Skeen teach the method of claim 4 and further comprise:

in which supplementary tag-by-tag OR field-by-field relationships are generated using one OR more of the filter mechanisms of: taxonomic distance (determining whether the relationships of composition and superordination are too distant to be necessarily valid), levels of delicacy (determining whether an aggregated data element needs to be disaggregated and re-tagged), potential semantic incursion (determining identifiable sites of ambiguity), and translation of silent into active tags or vice versa (determining the level in the hierarchy of composition or superordination at which data needs to be entered to effect superordinate transformations).

(See the Abstract→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., a sequence of transformation operations that transforms the source tree to the target tree is then generated [e.g., composition mechanism].) Also Su further discloses the match discovery process between the DTD trees follows parameter settings are used, where the cost of each data capacity gap category ranks from lower to higher in the order of DC-Preserve (0.25), DC-Increase (0.5), DC-Ambiguous (0.75) and DC-Reduce (1.0) [e.g., superordination mechanism] [@ para [84]].)

in addition Keen teaches:

data is imported,

(See Para [77]→ Skeen disclosed "Semantic transformation" refers to transformation where the source document or data is transformed from one vocabulary to another vocabulary with a different underlying data model (importing data).)

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said data is imported as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 8**,

Su and Skeen teach the method of claim 7 and further comprise:

in which a thesaurus and dictionary is created in combination with the definition of the taxonomy in which the dictionary unpacks the meaning by means of paraphrase and exemplars and the thesaurus display wordings through which meanings can be aptly expressed.

(See Para [77]→ Skeen disclosed "Semantic transformation" refers to transformation where the source document or data is transformed from one vocabulary to another vocabulary with a different underlying data model. A semantic transformation typical results in changes in type, structure, and semantics of the data. A subcategory of semantic transformation is where the source and target vocabularies are closely related.].)

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said in which a thesaurus and dictionary is created in combination with the definition of the taxonomy in which the dictionary unpacks the meaning by means of paraphrase and exemplars and the thesaurus display wordings through which meanings can be aptly expressed as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology,

common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 9**,

Su and Skeen teach the method of claim 7 and further comprise:

to thereby provide a basis of transfer of data to any other mapped schema in the related technology

(See Para [66]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., two schemas are considered equivalent if and only if there is a one-to-one mapping between a data instance in the source and the target schema.] Also Su further describes the standards and technologies enable enterprises to describe and advertise their own Web Services and to discover and determine how to interact with services fronted by other businesses, see Para [0003].)

In addition, Su does not expressly teach, but Skeen teaches:

in which the method includes mapping a layer of the thesaurus into the paradigm-constituting taxonomy for each schema,

(See Para [77]→ Skeen disclosed "Semantic transformation" refers to transformation where the source document or data is transformed from one vocabulary to another vocabulary with a different underlying data model. A semantic transformation typical results in changes in type, structure, and semantics of the data. A subcategory of

semantic transformation is where the source and target vocabularies are closely related.]. Also Skeen further discloses the concept of the "Semantic Web" and related technologies, such as Resource Description Framework (RDF) and XML Topic Maps have recently been developed. These technologies provide standard syntaxes for describing metadata using a well-defined XML syntax. This tells a program how to parse the metadata, but not yet what it means. Meaning is introduced to the syntax by what can be described as "meta-metadata." Examples are Containers in RDF Schema, Super classes in XML Topic Maps, and Collections in DAML+OIL. This layer enables the definition of Ontologies and Vocabularies, see Para 14.)

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said in which the method includes mapping a layer of the thesaurus into the paradigm-constituting taxonomy for each schema as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g.,

quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 10**,

Su and Skeen teach the method of claim 9 and further comprise:

in which the thesaurus takes each tagging schema as its starting point, lists its tags and reproduces the definitions and examples as given by each defined tagging schema and against each tag, a direct synonym is provided, whose semantics are coextensive with, OR narrower than, the tag against which the mapping occurs to provide a single equivalent for each mapped tag .

(See Para [77]→ Skeen disclosed "Semantic transformation" refers to transformation where the source document or data is transformed from one vocabulary to another vocabulary with a different underlying data model. A semantic transformation typical results in changes in type, structure, and semantics of the data. A subcategory of semantic transformation is where the source and target vocabularies are closely related.]. Also a Vocabulary and Ontology that is specific in XML DTDs with embedded concept identifiers thus conforming to the component based specification form that appears to be based on synonym matching and a rules engine for building transformations. Thos literature describes the benefit from the metadata as allowing two applications to share the meaning of a specific content item. [@ para 16 and 74]

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said in which the thesaurus takes each tagging schema as its starting point, lists its tags and reproduces the definitions and examples as given by each defined tagging schema and against each tag, a direct synonym is provided, whose semantics are coextensive with, OR narrower than, the tag against which the mapping occurs to provide a single equivalent for each mapped tag as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 11**,

Su and Skeen teach the method of claim 8 and further comprise:

in which the dictionary is constructed using five semantic rules: minimised ambiguity; functional clarity; lowest common denominator

semantics; the distinction of silent from active tag-concepts; and comprehensive internal cross-reference.

(See Para [7, 64, 7, 16, 3 and 134]→ Skeen discloses this limitation, as clearly indicated in the cited text [e.g., ambiguity filtering; functional clarity; defined within a narrower context; XML tag pair; and each partner maintain the relevant dictionaries for all vocabularies. For N partners with M vocabularies, this requires each partner to maintain M dictionaries, with a total of N*M dictionaries across all partners.])

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said in which the dictionary is constructed using five semantic rules: minimised ambiguity; functional clarity; lowest common denominator semantics; the distinction of silent from active tag-concepts; and comprehensive internal cross-reference as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and

develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 13**,

Su and Skeen teach the method of claim 8 and further comprise:

providing a structured query for assessment of ambiguous relationships of tags and receiving an assessed response to the structured query to add to the interlanguage DTD.

(See Para [93-0103]→ Skeen discloses ambiguous terms, overloaded terms, and non-unique terms [@ Par 86] wherein the terms are map to concepts by updating the ontology dictionary to reflect the winner. This analysis and update can be done performed incrementally over a period of time [@ Para 118]. Also Skeen further discloses Spec Analyzer for each specification language used; hence, EDI Spec Analyzer 802 is used for EDI specifications, and DTD Spec Analyzer 804 is used for XML-DTD specifications. Each spec analyzer can handle all specification styles supported by its specification language. The architecture allows for new spec analyzers to be added incrementally. The spec analyzers pass the initial vocabulary and ontology dictionaries to vocabulary designer 808 [@ Para 120].)

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said providing a structured

query for assessment of ambiguous relationships of tags and receiving an assessed response to the structured query to add to the interlanguage DTD as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 14**,

Su and Skeen teach the method of claim 8 and further comprise:

drawing implications from the assessed response to the structured query to become part of the memory is the apparatus, for aiding in automatically reading the structure and semantics ontology immanent in the source data.

(See Para [120]→ Skeen discloses creating vocabulary dictionaries and on ontology dictionaries in accordance with the preferred embodiment. Architecture analyzes the document specifications for the vocabularies of interest, builds the corresponding vocabulary and ontology dictionaries, and stores and manages the dictionaries in

repository 804. This architecture makes use of algorithms for constructing dictionaries described above. Specification Analyzer 802 (spec analyzer) performs the functions of reading and parsing the specification for a vocabulary and generating the initial vocabulary and ontology dictionaries.)

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said drawing implications from the assessed response to the structured query to become part of the memory is the apparatus, for aiding in automatically reading the structure and semantics ontology immanent in the source data as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 15**,

the rejection of claim 4 is fully incorporated. Thus, Su and Skeen disclose every limitation of Claim 15 and provide proper reasons to combine, as indicated in the above rejections for Claim 4.

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Regarding **claim 16**,

the rejection of claim 2 is fully incorporated. Thus, Su and Skeen disclose every limitation of Claim 16 and provide proper reasons to combine, as indicated in the above rejections for Claim 2.

Regarding **claims 18-22**, respectively

Claim(s) 18-22 respectively are directed toward a system to implement a method recited in Claim(s) 3-7. Thus, Su and Skeen disclose every limitation of Claim(s) 18-22 and provide proper reasons to combine, as indicated in the above rejections for Claim(s) 3-7 as recited above.

Regarding **claims 24-27**, respectively

Claim(s) 24-27 respectively are directed toward a system to implement a method recited in Claim(s) 8-11. Thus, Su and Skeen disclose every limitation of Claim(s) 24-27 and provide proper reasons to combine, as indicated in the above rejections for Claim(s) 8-11 as recited above, Also see Su @ Para [27 and Page 10 claim 18, computer system, computer readable memory].

Regarding **claim 29**,

Su and Skeen teach the method of claim 28 and further comprise:

organising digital mark up or computer software tags of the first digital mark-up OR computer software ontology into an overarching interlanguage ontology capable of absorbing and incorporating at least one other digital mark-up OR computer software ontology,

(See para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically transforming one XML schema to another XML schema utilized, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations (e.g., overarching).])

includes the steps of indexing according to the following rules: (i) **providing a first level of granularity such that tags which represent data at a finer level of delicacy in Ontology X produce automatically recomposed data in Ontology Y which manages the same data at a higher level of semantic aggregation.**

(See para [071, 93, and 118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., heuristic indicator of a possible semantic relationship between two tag node; wherein the match discovery process between the DTD trees parameter settings are used, where the cost of each data capacity gap category ranks from lower to higher

in the order of DC-Preserve (0.25), DC-Increase (0.5), DC-Ambiguous (0.75) and DC-Reduce (1.0).].)

In addition, Su does not expressly teach, but Skeen teaches:

> **includes the steps of indexing according to the following rules: (ii) providing a lowest common denominator semantics such that, when data has been data marked up with a pair of tags that can be interpreted to be closely synonymous but not identical, the narrower semantics of the two tags is operationalized. (iii) Providing contiguous domains wherein tags can be aggregated and aligned by virtue of the fact that they relate to semantically exclusive data.**

(See para [96]→ Skein disclose ontology is "minimal" if every relevant concept is expressed exactly once. Hence, the ontology contains no redundant concepts. Redundant concepts can be introduced into ontology through many means, but one common means is when the same concept is referred to by many different names within a vocabulary specification. Also Skeen further discloses the uses of XML metadata tag pair [@ Para [0003].)

> **(iv) providing subset schemas within a tag such that a whole new domain identified by within Ontology Q OR within a defined area of ontology Q can be mapped within a single tag in Ontology R.**

(See para [96]→ Skein disclose ontology is "minimal" if every relevant concept is expressed exactly once. Hence, the ontology contains no redundant concepts. Redundant concepts can be introduced into ontology through many means, but one

common means is when the same concept is referred to by many different names within a vocabulary specification. Also Skeen further discloses the uses of XML metadata tag pair [@ Para [0003].)

Accordingly, It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Su's method of document transformation between first schema into second target schema, to include a means of said indexing according to the following rules: (ii) providing a lowest common denominator semantics such that, when data has been data marked up with a pair of tags that can be interpreted to be closely synonymous but not identical, the narrower semantics of the two tags is operationalized. (iii) providing contiguous domains wherein tags can be aggregated and aligned by virtue of the fact that they relate to semantically exclusive data; (iv) providing subset schemas within a tag such that a whole new domain identified by within Ontology Q or within a defined area of ontology Q can be mapped within a single tag in Ontology R as taught by Skeen, because Su and Skeen are from the same field of endeavor of providing document transformation between first schema into second target schema utilized ontology domain, which would be advantageous, and provides the automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g.,

quantifiers and type-constructors) to discover and develop the sequence of transformation operations. This is generally set forth @ Para [118] of Su.

Regarding **claim 30**,

Su and Skeen teach the method of claim 28 and further comprise:

returning a set of results from data based on heterogeneous schemas that have been mapped against the interlanguage Document Type Definition.

(See para [0118]→ Su disclosed this limitation, as clearly indicated in the cited text [e.g., automatically transforming one XML schema to another XML schema through a sequence of transformation operations, is thus described. The present invention incorporates domain-specific characteristics of the XML documents, such as, domain ontology, common transformation types, and specific DTD modeling constructs (e.g., quantifiers and type-constructors) to discover and develop the sequence of transformation operations.] Also Su further discloses in the related field of schema translation between relational databases, the analysis and reconciliation between sets of heterogeneous relational schemas was performed by measuring the similarity of element names, data types, and structures [@ Para [0007].)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc A. Tran whose telephone number is 571-272-8664. The examiner can normally be reached on Mon through Fri 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Hutton can be reached on (571)272-4137. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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